

Scientists confirm oceans acidifying at unprecedented speed

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The acidification of the world's oceans, caused by the absorption of huge volumes of carbon dioxide, is accelerating at an unprecedented rate, threatening marine ecosystems and the livelihoods of tens of millions of people, concluded scientists attending the Second International Symposium on the Ocean in a High CO₂ World held in Monaco from 6-9 October. The meeting, attended by 250 marine scientists from 32 countries, was organized by UNESCO's Intergovernmental Oceanographic Commission, the Scientific Committee on Oceanic Research (SCOR), the International Atomic Energy Agency (IAEA) and the International Geosphere Biosphere Programme (IGBP), with the support of the Prince Albert II of Monaco Foundation and several other partners.

“Our oceans are sick. We don't quite know how sick, but there is enough evidence now for us to say that ocean chemistry is changing, that as a result some marine organisms will be affected, and that decision makers need to sit up and take notice,” said James Orr of the IAEA and Chairman of the meeting.

Acidification results from the ocean's capacity to absorb vast quantities of carbon dioxide, about one-third of what we emit to the atmosphere from combustion of fossil fuels. Currently, the ocean absorbs about eight billion tonnes of CO₂ annually that would otherwise stay in the atmosphere. It thus plays an important role in mitigating global warming. But at what price?

“Since the industrial revolution, the acidity of ocean surface waters has increased by 30 percent. This change is greater and happening about 100 times faster than for previous acidification events experienced in many millions of years,” said Dr. Orr.

“Published research indicates that by 2030, the Southern Ocean will start to become corrosive to the shells of some marine snails that swim in surface waters. These snails provide a major source of food for Pacific Salmon. If they decline or disappear in some regions, such as the North Pacific, what will happen to the salmon – and the salmon fishing industry? And what will happen as ocean acidification increasingly affects coral reefs, which are home to one-quarter of the world's fish during at least part of their lifetime, and which support a multi-billion dollar tourist industry?” he continued.

“Previous acidification events provide a clue,” said Carole Turley from the Plymouth Marine Laboratory (U.K). “The evidence indicates mass extermination of shell bearing organisms for example. This bears out with studies of the ocean floor around existing natural CO₂ vents today, where the sea water is already highly acidified, and which show a steep decline in biodiversity and the appearance of invasive species.”

The scientists attending the Monaco conference agreed that much more research is needed to understand the implications and impact of the acidification occurring today. They also insisted that reducing carbon emissions would be the only effective way of stabilizing or reversing the acidification process, and argued that, despite the reticence of many governments, this was both achievable and affordable.

Hermann Held of the Potsdam Institute for Climate Impact Research (Germany), told the participants that the cost of achieving zero carbon emissions over the next century could be less than 1.5 percent of global Gross Domestic Product.